

SPRING

2008

Natural

OUTLOOK

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

A close-up photograph of a person's hands holding a black camera. The camera's large fisheye lens is the central focus, showing a wide-angle view of an industrial facility with various towers, pipes, and structures. The person's face is partially visible on the left, and their hands are positioned to hold the camera steady. The background is a clear blue sky.

Focus on Air Quality

High-tech monitors
track down emissions
in the Houston area



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Commissioners

Buddy Garcia, Chairman
Larry R. Soward
Bryan W. Shaw, Ph.D.

Executive Director

Glenn Shankle

Natural Outlook Staff

Agency Communications Director

Andy Saenz

Publishing Manager

Renee Carlson

Media Relations Manager

Terry Clawson

Editor

Jorjanna Price

Art Director

Michele Mason

Copy Editor

Victor Guerra

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TCEQ

P.O. Box 13087

Austin, TX 78711-3087

Or phone 512-239-0010;

e-mail ac@tceq.state.tx.us;

or fax 512-239-5010.

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Natural OUTLOOK

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Exploring environmental issues and challenges in Texas

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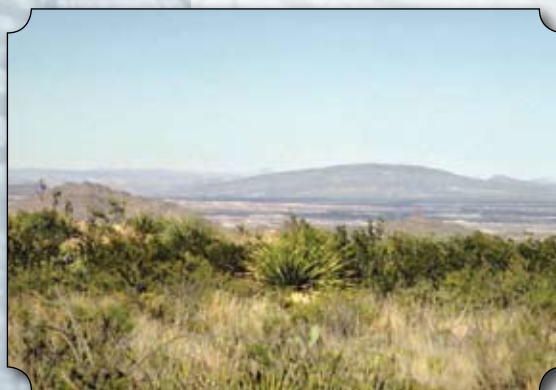
Student Design Takes Off

Drive a Clean Machine gets a new logo to promote cleaner emissions.

COVER: An infrared imaging camera, which can see emissions invisible to the naked eye, is one of the technologies the TCEQ has deployed in the Houston area to improve air quality. Photo by Douglas Falls, TCEQ; inset photo by iStock.

Oh, Say, Can You See?

Regional haze affects visibility at national parks



Courtesy of National Park Service

When the skies are clear over Big Bend National Park, it is possible to see the details of large geologic features more than 100 miles away. But a hazy day (right) can reduce visibility to only 35 miles. The National Park Service reports that during a few days of each year Big Bend has the worst visibility of any western national park.

At Big Bend National Park, hikers who make it to the highest parts of the Chisos Mountains often delight in the panoramic views. On a clear day, mountaintops in Mexico can be seen in the distance.

But the clear days are not so plentiful due to problems with visibility.

Big Bend and Guadalupe Mountains National Park, both in remote parts of West Texas, are destinations for a combined 500,000 vacationers each year.

However, the expectation of seeing grand vistas vanishes when visitors encounter a day marked by poor visibility. Big Bend has some of the densest regional haze of all the national parks in the western United States.

So what's affecting the views? Particulate matter. When sunlight encounters tiny pollution particles, which scatter and absorb the light, the result is haze.

State and federal studies show that haze-forming pollution comes from both natural and man-made sources.

Windblown dust and soot from wildfires contribute to hazy skies, as do cars and trucks, electric power plants, manufacturing operations, and the practice of open burning. Particles from these activities can travel a long way from sources both inside and outside the United States before blowing across West Texas.

In the western states, which include Texas, hazy conditions in national parks reduce visibility from 140 miles under pristine conditions to a range of 35 to 90 miles, according to federal estimates.

Under the federal Regional Haze Rule, states are directed to work together in regional partnerships to improve visibility in 156 national parks and wilderness areas around the country. These protected areas include not only Big Bend and Guadalupe Mountains national parks, but also the Grand Canyon, Yosemite, Shenandoah, and the Great Smokies. Among Texas' neighbors, New Mexico has nine protected areas, Arkansas has two, and Oklahoma and Louisiana each have one.

Geological Gems

Texas' two national parks are among the state's most valuable natural assets. The massive Big Bend National Park, which rivals Rhode Island in size, boasts of river, desert, and mountain environments. Visitors can ride the rapids down the Rio Grande one day and on the next day hike rugged mountains rising to 7,800 feet. The biological diversity and historical significance of the area provide rare opportunities for visitors to explore.

Guadalupe Mountains National Park features the highest point in the state: Guadalupe Peak at 8,749 feet. The park's ecological zones range from desert to high-altitude forest. The 2,000-foot-thick limestone layer of the Capitan Reef is regarded as one of the world's finest examples of ancient marine fossil reef, and is a draw for geologists from many countries.

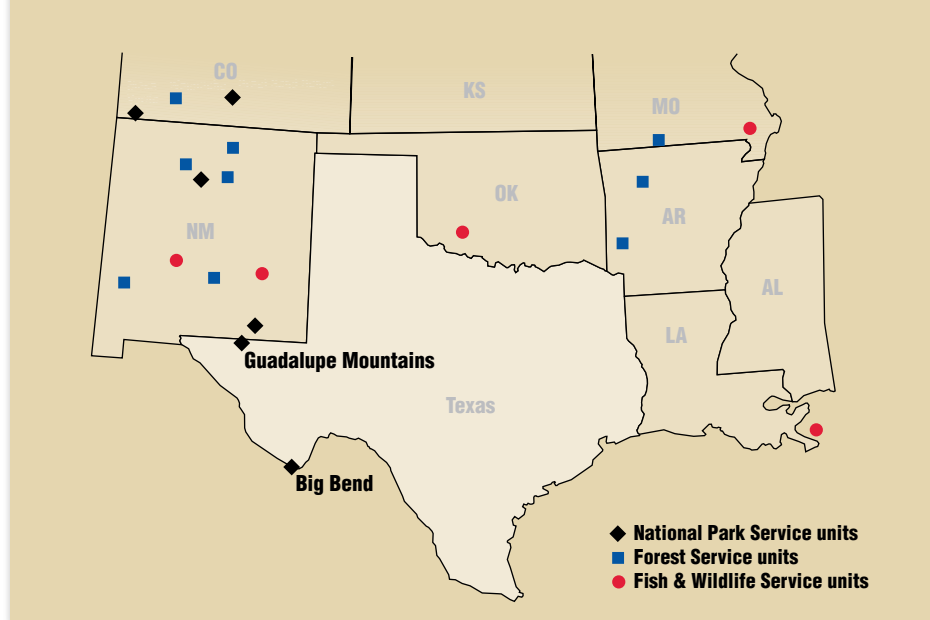
Air quality at both parks is affected by a number of external factors. Big Bend's is influenced primarily by human activity, including smoke from agricultural

burning in Mexico and Central America. The park at Guadalupe Mountains is more affected by dust storms that originate in desert areas in northern Mexico, southwestern New Mexico, and West Texas. (See “Dust Up in West Texas.”)

The National Park Service operates monitoring equipment at both parks to track changes in air quality. These monitors collect visibility-reducing particles for laboratory analysis. It also has a webcam at Big Bend that displays the current visibility range: www.nps.gov/bibe/naturescience/airquality.htm.

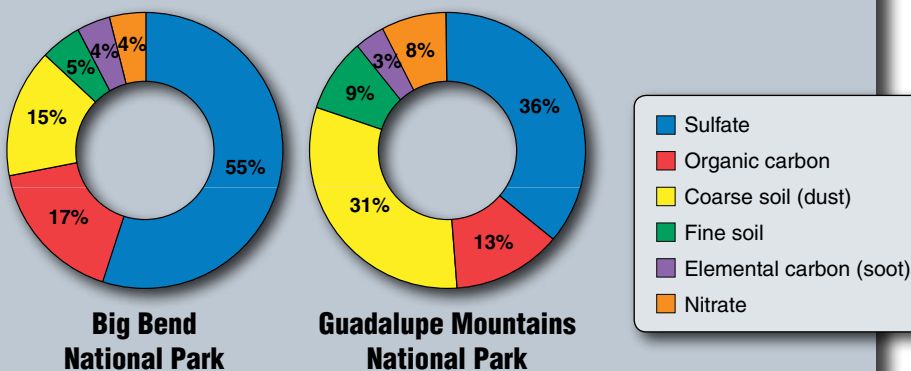
The haziest days at Big Bend usually occur from April through October. High concentrations of smoke and dust begin to affect visibility in the spring, when farmers in southern Mexico and Central America burn crop remnants to clear their land, a practice that can lead to full-scale wildfires.

Nearby National Parks and Other Protected Areas



States must address visibility impairment resulting from “man-made air pollution” at national parks and wilderness areas. For Texas, this means considering the effect of emissions on its two national parks, as well as on those in neighboring states. Prevailing wind patterns can transport pollutants hundreds, even thousands, of miles from the source.

Main Components of Haze



Among the man-made sources, sulfates represent the main contributor to impaired visibility. The source is sulfur dioxide (SO₂), mainly from electric power plants, petroleum refineries, paper mills, and metal smelters in the midwestern and southern United States, in Texas, and in Mexico.

The transport of these particles for thousands of miles demonstrates the ability of pollutants to travel long distances.

Looking for Solutions

The federal Regional Haze Rule does not require Texas to overcompensate, or over control, for emissions coming from outside the country. But for emission sources of U.S. origin, the Environmental Protection Agency has several regulatory programs concerned with regional haze.

Texas has adopted the federal Clean Air Interstate Rule (CAIR), which requires a net reduction by 2015 of more than 60 percent in SO₂ and nitrogen oxides (NO_x) from electric power plants among states in the program. The TCEQ has also adopted the Best Available Retrofit Technology (BART) program to ensure that large plants that were built before modern new source emission limitations were in place have no significant impact on visibility at protected national parks and wilderness areas.

The TCEQ adopted a BART rule in early 2007. Since then, modeling shows that 30 older industrial sources, all subject to review under the rule, have not had an impact on national parks and wilderness areas above EPA's specified threshold. Recently adopted legally enforceable reductions in emissions at several of these industrial sources resulted in the elimination of several thousand tons per year of haze-forming pollutants.

For emission sources within the state, the TCEQ points out that existing programs designed to reduce ozone also benefit visibility in national parks here and in surrounding states.

Texas has implemented comprehensive ozone control strategies in the areas of Houston-Galveston, Beaumont-Port Arthur, and Dallas-Fort Worth that are designed to reduce levels of NO_x and volatile organic compounds, both of which contribute to ozone formation. Other urban areas have voluntary programs in place to lower ozone-forming emissions.

Plan Being Formulated

To comply with the Regional Haze Rule, the TCEQ is revising the State Implementation Plan (SIP) to address visibility at both Big Bend and Guadalupe Mountains parks and at protected areas in neighboring states.

The federal rule calls for visibility improvements at national parks on the haziest days and no additional visibility impairment on the clearest days. It also requires states to take into account their impact on such areas in other states when determining their own reductions.

EPA has set a long-term goal to eliminate the effects of human activity on visibility by 2064, but for now states are concentrating on improvements for the next 10 years.

States are required to show that they are making reasonable progress toward meeting “natural visibility conditions”—the natural levels of particle concentrations that would exist without the influence of human activities. EPA is requiring the states to determine what the natural visibility conditions would be for their national park and wilderness areas.

Dust Up in West Texas

Mention dust storms to anyone from West Texas, and there will be stories to follow. Tales about storms that brought highway traffic to a standstill or ripped cotton crops to shreds. Swirling dust and sand, propelled by high gusts, can be so dense that the midday sun all but disappears.

While these high-wind events vary in intensity, all dust storms affect visibility to some degree.

Dust storms contribute to some of the major regional haze and particulate matter episodes measured in West Texas, according to TCEQ studies. Dust is certainly a factor in calculating visibility at the two federally run parks in West Texas, especially at Guadalupe Mountains National Park.

Both rugged parks at the Guadalupe Mountains and Big Bend are located in the Chihuahuan Desert, which is characterized by limited rainfall, sparse vegetation, and high winds. Stretching from northern Mexico into Texas, New Mexico, and Arizona, the Chihuahuan Desert is one of four major dust storm areas in the United States.

The number of dust storms in West Texas ranges from five to 25 a year. The frequency and the intensity of these weather events depend on factors such as weather and the moisture content of the soil.

Data gathered from air quality monitors and meteorological equipment show that the park at Guadalupe Mountains had 48 dust storms from 2000 to 2004, while Big Bend had 23 in the same period.

During the worst visibility days at the Guadalupe Mountains, dust is responsible for about 50 percent of the visual impairment; at Big Bend, it is 20 percent.

Dust storms are recurring, natural events and therefore cannot be controlled. The TCEQ maintains that the inevitability of dust storms should be given considerable weight in developing plans for improved visibility at the state’s two national parks over the coming decades. 🌵

A Day for the Record Books

For Texas, the worst dust storm recorded in recent years occurred April 15, 2003. The El Paso airport reported visibility as low as one-eighth of a mile with peak wind gusts of 66 miles per hour. The high winds were associated with a strong low pressure system centered in Colorado, which kicked up large plumes of dust in New Mexico and West Texas. 🌵

Rather than using EPA’s target for natural conditions at Big Bend and Guadalupe Mountains, the TCEQ has opted to develop refined estimates that take into account the recurrence of natural dust storms in the region.

To prepare for this summer’s SIP submission to EPA, the TCEQ

has held consultations with other states and with federal land managers from the National Park Service, U.S. Forest Service, and U.S. Fish and Wildlife Service.

Further information on the TCEQ’s Regional Haze SIP is available at www.tceq.state.tx.us/goto/sip/haze. 🌵

At the Head of His Class

New commissioner puts teaching, research projects on hold



At age 41, Bryan W. Shaw was in the enviable position of having found his “dream job.” He was teaching at the college level in his chosen field of agricultural engineering, a pursuit he found extremely satisfying. On top of that, his employer was Texas A&M University, his alma mater.

So why leave a job that had everything he wanted?

That is the dilemma Shaw faced when presented with the unexpected opportunity to serve as a commissioner at the TCEQ. Gov. Rick Perry extended the offer in the fall of 2007 to fill a vacancy on the three-member commission, which sets overall direction and policy for the agency.

As Shaw discussed the possible move with colleagues and wife Dana, he began to see the appointment as a natural progression from his teaching and research projects, explaining: “What I’d already been working on for years was how to improve the process of having science inform decision making and policy making. It was what I’d been advising the Environmental Protection Agency and the U.S. Department of Agriculture on.”

During his career, which included a 14-month stint at the USDA in Washington, D.C., Shaw had seen the inefficiencies that sometimes occur as science and policy making meld into

environmental regulations. He observed how policy decisions made in Washington could be interpreted differently at the regional and local levels, and how some permitting decisions were based on data that was decades old and no longer relevant.

“I look forward to bringing my science background to the commission and adding it as a key component to the decision-making process at the TCEQ,” he says.

As an associate professor in A&M’s Biological and Agricultural Engineering Department, many of his courses focused on agricultural engineering. Typical classroom lectures would cover processing and storage of agricultural commodities, material handling, psychrometrics, and pollution abatement design. The majority of his research concentrated on air pollution, air pollution abatement, dispersion model development, and emission factor development.

With degrees from A&M and a doctorate from the University of Illinois, Shaw had a solid academic background. And being raised in a ranching family had taught him the practical side of the ag business.

Shaw grew up in Knott and Seminole, both in West Texas. As the youngest of four siblings, he spent most of his time after school and during summer breaks as a ranch hand. His father farmed cotton and peanuts and

“I look forward to bringing my science background to the commission and adding it as a key component to the decision-making process at the TCEQ.”

raised cattle. Living off the land in West Texas had a profound influence on Shaw's view of the importance of protecting natural resources for generations to come.

Once established on the A&M faculty, Shaw bought his own 100-acre spread in Brazos County. His father-in-law is running the cattle ranch while Shaw is on a leave of absence from the university. In December, Shaw moved his wife and two children to Round Rock.

While learning about TCEQ rules and procedures, Shaw says he also wants to encourage regulated industries to be innovative in responding to state and federal environmental requirements.

“Industry is in a position to offer technologies protective of the environment that often also improve their bottom line. I don't believe environmental protection and efficiency opportunities are mutually exclusive,” says Shaw. “We should encourage them to come to the table and identify the approaches that enable them to achieve environmental goals and remain economically viable.”

At the same time, he adds, the state should be careful to target strong regulatory focus on areas where clear environmental and public health benefits are realized.

“There are problem areas in air and water quality. I consider it my job to ensure the environmental laws of this

state are being followed. I also believe there is a cost associated with every program we administer at the TCEQ. It is absolutely critical that we identify ways to maintain or improve our level of protectiveness while allowing for continued economic growth.”

That, no doubt, is why Shaw often brings up the term “efficiency,” explaining that opportunities always exist to improve and streamline. “We need to make sure the efficiency of TCEQ regulations is as high as possible.”

Not having much time to get his feet under him, Shaw has found himself in the middle of the state's efforts to get the Dallas-Fort Worth State Implementation Plan (SIP) for ozone approved by EPA. He says he has been impressed with the professionalism and abilities of the TCEQ SIP team.

“It is imperative that EPA and other state environmental regulatory agencies across the country recognize the time, capital, effort, and skill used in developing the Dallas-Fort Worth SIP,” he says. “I believe we can and should serve as the national model for creating and implementing approvable SIPs—especially in areas where it appears that such a plan is not possible.”

Shaw has six years to test his ideas. His term runs through August 2013, pending confirmation by the state Senate. After that, there is a good chance he will be back in his college classroom.

“That is my plan at this point. The position will still be there, and my colleagues will still be conducting the research and continuing the grants I had in play.”

And Shaw will bring many new insights to his studies on the interaction of science and policy making. 🐾

In Brief

Bryan W. Shaw, Ph.D.

Education

Texas A&M University:	B.S., 1988
	M.S., 1990

University of Illinois at Urbana-Champaign:	Ph.D., 1994
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Career

Texas A&M, Biological and Agricultural Engineering Department, 1994-2002:
assistant professor, associate professor

U.S. Department of Agriculture, 2002-2003: acting lead scientist for air quality, special assistant to the chief of air quality

Texas A&M, 2003-2007: associate professor, associate director of the Center for Agricultural Air Quality Engineering and Science, member of EPA's science advisory board and USDA's agricultural air quality task force

Forecast for Houston: Air

Multi-layered strategies and high-tech equipment focus on the region

Armed with advanced technology capable of detecting emissions, two TCEQ investigators made a discovery last year that surprised even the veterans in their field.

Jason Harris of the Houston regional office recalls that he and a co-worker were conducting fence-line monitoring near the town of Shoreacres, east of Houston. They were using an infrared imaging camera that can find air pollution invisible to the human eye.

With the camera, called the GasFindIR, Harris and his colleague saw significant amounts of emissions

spewing from separator equipment at a natural gas production facility.

A follow-up inspection showed that the industrial site had a permit to release 25 tons per year of volatile organic compounds (VOCs) and had been reporting emissions of only 4.7 tons.

Testing showed that in reality an estimated 386 tons a year of VOCs were escaping.

The TCEQ began enforcement proceedings, and the company owner installed a vapor recovery unit, which lowered emissions to an allowable level.

Harris attributes the discovery and quick resolution to the infrared camera, which the agency uses on a regular basis to assist in locating unauthorized or previously unknown emissions from industrial plants and marine vessels. With this technology, environmental regulators can identify emissions that once were difficult—if not impossible—to detect.

But this unique camera is just one approach to addressing air quality issues.

Agency Strategy

The TCEQ prioritizes investigations and other activities at facilities near monitoring locations with high annual averages of specific air pollutants.

The agency has adopted the following approach:

- continue use of the infrared camera technology to identify the emissions
- use stationary and mobile air monitoring data to prioritize investigations
- aggressively pursue enforcement actions and/or emission reductions when violations are found
- conduct stricter reviews of air permit applications for control requirements

Quality Improving

Houston not only has the ongoing problem of ground-level ozone—the area is in nonattainment of the federal 8-hour ozone standard. But, there is also an abundance of industrial facilities emitting various kinds of contaminants. One notable example is benzene, a well-documented carcinogen that is a building block for many products, such as packaging, compact disks, and gasoline.

Benzene and other air toxics, like 1,3 butadiene, are not regulated directly under the National Ambient Air Quality Standards, but rather as hazardous air pollutants and through the state's

New Source Review permitting program.

The Environmental Protection Agency is required to control 188 hazardous air pollutants, or air toxics. In sufficient concentrations, these pollutants could potentially

cause a wide variety of adverse health effects.

To track this category of pollutants, the TCEQ has assembled an array of advanced monitoring tools. The agency also pursues multiple strategies to get results, including soliciting industry cooperation to find and reduce emissions.

Large Industrial Hub

Harris County and its neighboring counties are home to eight petroleum refineries, three of which are listed among the 10 largest in the United States. Also more than 150 chemical facilities in the area provide products for the domestic and international markets.

Yet, even with steady growth—in terms of people, traffic, and industry—the region continues to make progress cleaning the air.

“With state regulations and enforcement activity, the levels of nitrogen oxides have fallen 57 percent and VOCs by 38 percent since 2000,” said David Schanbacher, the chief engineer at the TCEQ. “This represents a total reduction of 675 tons per day of these smog-forming pollutants.”

Air quality also continues to improve, says Schanbacher, because the TCEQ is aggressively targeting specific air toxics, such as benzene.

Some of the monitoring tools helping to pinpoint these emissions in the Houston area include:

Infrared cameras. With the technology of the GasFindIR camera, which was developed for the military, TCEQ investigators can view emission plumes not visible to the naked eye. The agency owns six cameras. Besides two at the Austin headquarters used for field monitoring, there are two in the Houston regional office, and one each in the Corpus Christi and Midland regions.



The TCEQ is paying special attention to tugboats, towboats, and barges working on the Houston Ship Channel to determine the source of benzene emissions. A monitoring station near the Lynchburg Ferry reports pollutant concentrations every hour.

Through an agreement with the U.S. Coast Guard, TCEQ investigators are now able to conduct infrared-camera observations of facilities along the Houston Ship Channel from Coast Guard vessels. This way, state investigators can get much closer to facilities on the water.

The infrared camera has also been dispatched on aerial surveys of industrial sites. In 2005, the camera helped identify more than 7,000 tons per year of ozone-forming emissions, including

benzene. Those emissions have since been eliminated.

For the public to understand how the agency intends to use data generated by these cameras, the TCEQ has developed a protocol (look under “GasFindIR Use Protocol” at www.tceq.state.tx.us/goto/airhelp).

Mobile monitoring. The TCEQ deploys up to eight mobile monitoring vans to conduct monitoring for different pollutant types, sampling upwind

and downwind of specific facilities to identify pollution sources. This practice is helpful when there is no stationary monitor in the proximity or when a stationary monitor has identified key pollutants in a highly industrialized area. In a cluster of facilities, it can be difficult to pinpoint a pollution source with just a stationary monitor. Agency vans drive outside a company’s fence line, with monitors positioned according to the wind direction, to pinpoint sources of elevated emissions.

Differential absorption lidar (DIAL). This mobile monitoring unit combines infrared and ultraviolet laser technology to scan industrial facilities and measure emissions from sources such as storage tanks, flares, and cooling towers. After a five-week trial last year, the TCEQ is reviewing DIAL monitoring data to determine whether calculation methods used to estimate emissions

Health Screening Levels Take Shape

Revised guidelines for air quality will better protect public health

Toxicologists at the TCEQ are working on a project to update the health screening values for key chemicals—air pollutants that are closely tracked by many of the air quality monitors in Texas or are frequently permitted.

Among these are toxic air pollutants—chemicals that are known or suspected to cause cancer or other serious health problems in sufficient concentration and exposure.

The project is part of an ambitious re-examination of the agency’s “effects screening levels,” or ESLs. These levels are chemical-specific air concentrations established to protect the public’s health. ESLs are established for air pollutants that are not regulated by federal ambient air quality standards.

The agency’s ESLs are set well below levels that would cause adverse health effects. When monitored levels of a chemical exceed its ESL, that triggers further evaluation of actual risk and, if

appropriate, emissions reductions. ESLs play a leading role in evaluating air monitoring data, setting emission limits in air permits, and determining safe cleanup levels during remediation projects.

TCEQ management decided in 2003 to update the 30-year-old ESLs. That decision started agency toxicologists on a two-year review of all known methods of deriving health-protective values. Their resulting methodology won the approval of a scientific peer review.

In 2006, after two rounds of public comments, the TCEQ completed new guidelines for developing ESLs. For chemicals that may cause cancer, the agency adopted a cancer-risk level of 1 in 100,000, which is the midpoint in the Environmental Protection Agency’s range of 1 in 10,000 to 1 in 1,000,000.

Under the TCEQ risk level, if 100,000 people were continuously exposed for a lifetime to a concentration of a carcinogen

result in the underrepresentation of some sources that are difficult to monitor.

These various types of mobile equipment complement a broad array of stationary monitors in the region, some of which calculate hourly averages of emissions day and night. The TCEQ and partners in local government and industry operate stationary air samplers that together make up one of the largest monitoring networks in the world. The system includes monitors capable of triggering e-mail alerts when concentrations spike, so that the TCEQ and its partners can quickly look for the emissions source.

In another development with the Coast Guard, the maritime agency is helping the TCEQ pinpoint emissions from vessels traveling the Houston Ship Channel. The TCEQ hosts data from several industry-sponsored monitors, one of which is an automated gas

chromatograph at the Lynchburg Ferry, where the ship channel meets the San Jacinto River. Using real-time data, the monitor issues an alert when it detects elevated concentrations of benzene.

The Coast Guard checks wind direction and provides a radar picture of the tugboats and towboats that were in the vicinity at the time of the concentration spike.

Because the state does not regulate marine vessels in transit, the TCEQ assigns its pollution prevention team,

which has no enforcement authority, to contact the tug, tow, and barge owners to gather information on what the barge was carrying, and where it was traveling to and from. Through this approach, the TCEQ may be able to determine whether barges carrying benzene products are contributing to benzene levels in the air.

American Waterways Operators has agreed to work with the TCEQ on this project. The TCEQ, along with the Louisiana Department of Environmental Quality, has also assisted this organization with creating a guidebook of best management practices to help reduce inadvertent emissions from tank barges.

Guidelines Protect Health

The TCEQ uses scientific data to establish health-protective levels of exposure for air pollutants. These “effects screening levels” are also known as ESLs (*see “Health Screening Levels Take Shape.”*)

The agency relies on ESLs and state regulatory standards to designate areas for the Air Pollutant Watch List and to set enforceable industrial air permit limits.

When an air quality monitor measures trends that exceed an ESL, the TCEQ places the surrounding area on the Watch List for stricter inspections, monitoring, enforcement, and permitting reviews.

Of 14 monitoring locations on the Watch List in Texas, five are in Harris,



To the naked eye, nothing appears amiss at this tank facility in Nederland. But the lens of an infrared imaging camera (right) tell a different story—hydrocarbons escaping into the atmosphere of East Texas. This new camera technology is helping to advance mobile monitoring.

Photos by Tim Doty, TCEQ

equal to the ESL, there would theoretically be one case of cancer—in addition to the current U.S. rate for all cancers of 30,000 to 40,000 for every 100,000 people. Exposure at the 1-in-100,000 level is unlikely to cause adverse health effects in the general public. The TCEQ rejected the 1-in-10,000 level as not sufficiently health-protective.

Examining the ultra-low 1-in-1,000,000 risk level led to conclusions that using this risk level would result in unenforceable violations at most air toxics monitors. For example, the TCEQ is barred by federal law from setting emission standards for cars and trucks. Yet at many monitors across the country, including those in rural and suburban areas of Texas, benzene exceeds the 1-in-1,000,000 risk level due to vehicle emissions alone.

By the end of 2007, the toxicology team had completed nine ESLs, including one for benzene, that meet the health-protective 1-in-100,000 risk level. Another 10 ESLs, which include 1,3 butadiene, were submitted to the public for comments in January 2008. Work is under way on 11 more ESLs.

Once completed, the new ESLs take effect immediately.

The ESLs for benzene and 1,3 butadiene have drawn considerable attention because both are known human carcinogens. Industrial facilities in Harris County produce more of these two compounds than any other location in the country. 🌟

Galveston, and Brazoria counties. In just the Houston-Galveston Watch List

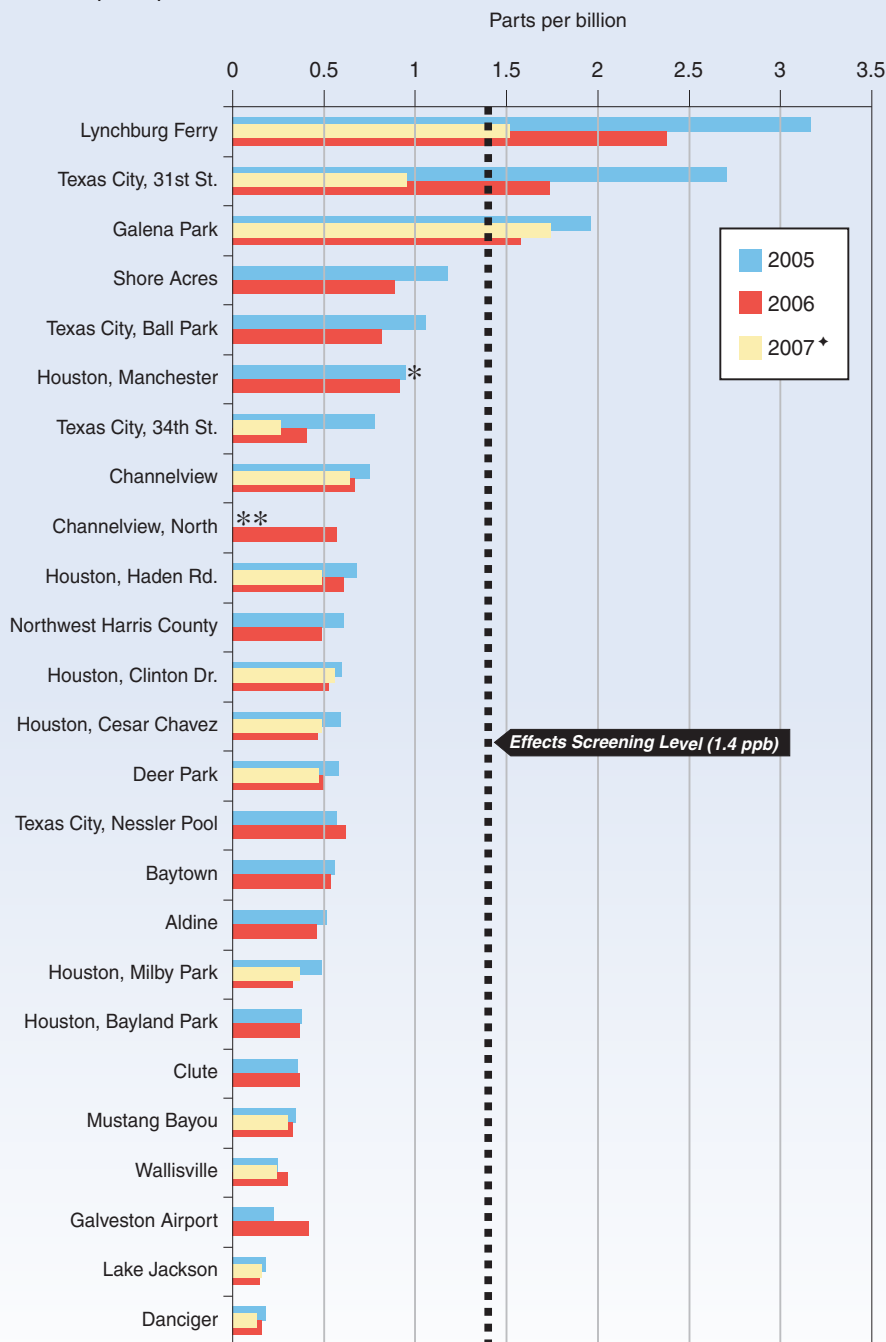
areas, the annual averages for benzene were 20 percent to 48 percent lower in

2006 than in 2005. There were further improvements in 2007. One additional area in Galveston County was removed from the Watch List in 2007 after monitoring data showed sustained benzene reductions.

When monitored levels fail to decline, the agency takes additional steps, such as aggressive use of state-of-the-art monitoring equipment, to find and implement controls on previously underestimated or unknown emissions.

Annual Averages of Benzene Harris, Galveston, and Brazoria counties

Of the 25 air toxics monitors in the Houston area, the majority have seen declining benzene levels the last two to three years. When 2007 data analysis is complete by mid-year, there may be only two monitors still exceeding the effects screening level. The new ESL for benzene, established in October 2007, is 1.4 parts per billion.



*Incomplete year of sampling. **Number not available for 2005. *All 2007 averages will be available by mid-2008.

Getting Results

An important part of the TCEQ's strategy has been to work in cooperation with industry, and those efforts are paying off on the east side of Houston.

In the Milby Park and Manchester neighborhoods, voluntary agreements obtained with local companies resulted in lower levels of 1,3 butadiene at the nearest downwind monitor—a drop of 75 percent annual average concentrations from 2004 to 2007.

14 to Watch

The TCEQ established the Air Pollutant Watch List to identify locations in which specific pollutants have been measured at levels that could cause adverse short-term or long-term health problems.

Currently, 14 locations are listed; of those, five are in Harris, Galveston, and Brazoria counties. The remainder can be found in the counties of Bastrop, Bowie, Cass, Dallas, El Paso, Jasper, Jefferson, and Nueces.

The agency uses the Watch List to raise awareness and encourage emission reductions. For more information, see www.tceq.state.tx.us/goto/airwatch.

This occurred after a series of meetings with large firms that had been identified as potential sources. The resulting agreements established specific timelines for the facilities to reduce specific emissions and/or implement additional controls, such as flare gas recovery systems and improved controls on flare and wastewater emissions. Companies also agreed to install their own fence-line monitoring and to use infrared cameras to find leaks.

From 2005 to 2007, benzene levels at the Lynchburg Ferry monitor measured a 52 percent reduction. The agency used monitors and the infrared camera to target potential sources in this heavily industrialized area, which includes barge operations, tank facilities, chemical plants, and petroleum refineries. TCEQ enforcement activities, industrial emission-reduction agreements, and a collaborative effort with area industries to identify and control emissions all contributed to this achievement.

In the process of focusing on pollution sources, owners of industrial facilities often find they ultimately save money by locating leaky equipment. In the Shore-acres investigation, once the emissions problem was resolved, the company was no longer losing valuable raw product. In these cases, the pollution control equipment pays for itself in short order.

“With all the resources devoted to the Houston area, we can say there has been significant progress in air quality, including air toxics. But much remains to do,” said Schanbacher. “That is why the TCEQ continues to look for ways to protect the environment and reduce pollution. We do this relying on health-based data and state-of-the-art monitoring tools to prioritize our investigations and regulatory actions.” 🌿

Occupational Licensing Gets an Update

Revised rules for occupational licenses and registrations took effect early this year. The changes affect 10 occupations that are licensed by the TCEQ.

Among the chief revisions are:

- Licenses and registrations are now valid for three years, instead of two. This change makes for more efficient operations at the agency.
- Fees bump up slightly—\$2 per year—to pay for online renewals. Eligible licensees who have completed their continuing education can renew their licenses through Texas Online at www.tceq.state.tx.us/goto/renew. Electronic renewals take only a matter of days rather than weeks.

Both of these provisions apply to licenses or registrations that expired on or after Jan. 1, 2008.

To see other rule changes that took effect earlier this year, go to www.tceq.state.tx.us/goto/rules/licensing. 🌿

Occupations Requiring a TCEQ License

The Compliance Support Division issues occupational licenses to qualified individuals in 10 environmental professions. As of February 2008, almost 50,000 licenses had been issued statewide.

Licensing programs	Licenses issued
Backflow prevention assembly testers	4,998
Customer service inspectors	1,813
Landscape irrigators	6,204
Leaking petroleum storage tank corrective action specialists and project managers	1,364
Municipal solid waste facility supervisors	1,161
On-site sewage facility installers, designated representatives, site evaluators, maintenance providers, and apprentices	7,278
Underground storage tank contractors and supervisors	1,264
Public water system operators and operations companies	14,601
Water treatment specialists	546
Wastewater system operators and operations companies	10,711
Total	49,940

Air Initiatives Yield Results

Areas with Early Action Compacts hit their targets on air quality

Three areas of Texas that initiated their own efforts to improve air quality have reached an important milestone—all met their goals for reducing ground-level ozone.

The areas of San Antonio, Austin-Round Rock, and Northeast Texas have been engaged in a three-year program to implement a variety of clean-air strategies.

Their mission was to lower ozone levels by Dec. 31, 2007, to comply with the federal 8-hour ozone standard. All of them succeeded and, by doing so, avoided being designated as nonattainment by the Environmental Protection Agency.

Once an urban area has been designated as nonattainment for the 8-hour standard, the TCEQ must begin working on a plan to curb harmful emissions. After it is approved by the commission, the State Implementation Plan goes

to EPA for review. The nonattainment area then has to comply with various requirements by specific dates.

Texas already has three nonattainment areas: Houston-Galveston, Dallas-Fort Worth, and Beaumont-Port Arthur.

But, by having already agreed to an Early Action Compact (EAC), an urban area stays in the driver's seat, retaining the ability to design and implement its own action plan for improving air quality, such as using vanpools and flexible work schedules for commuters or adding low-emitting vehicles to fleets.

Idea Reaches Fruition

The concept of an EAC was conceived in Texas. San Antonio was the first to participate, signing an agreement with the TCEQ and EPA in December 2002. San Antonio's voluntary enrollment

was soon followed by Austin-Round Rock and Northeast Texas (Longview-Marshall-Tyler), and all three began to develop plans for improving air quality.

At the time, the federal 8-hour ozone standard was soon to take effect, and all three areas were monitoring exceedances of the ozone standard. The EAC agreements were formally adopted in 2004.

EPA designated the counties of Bexar, Comal, and Guadalupe as nonattainment-deferred for the 8-hour standard. Under nonattainment-deferred, the area has a deadline for reaching attainment; if the deadline is not met, the more stringent nonattainment requirements take effect. Neighboring Wilson County agreed to take part in the compact.

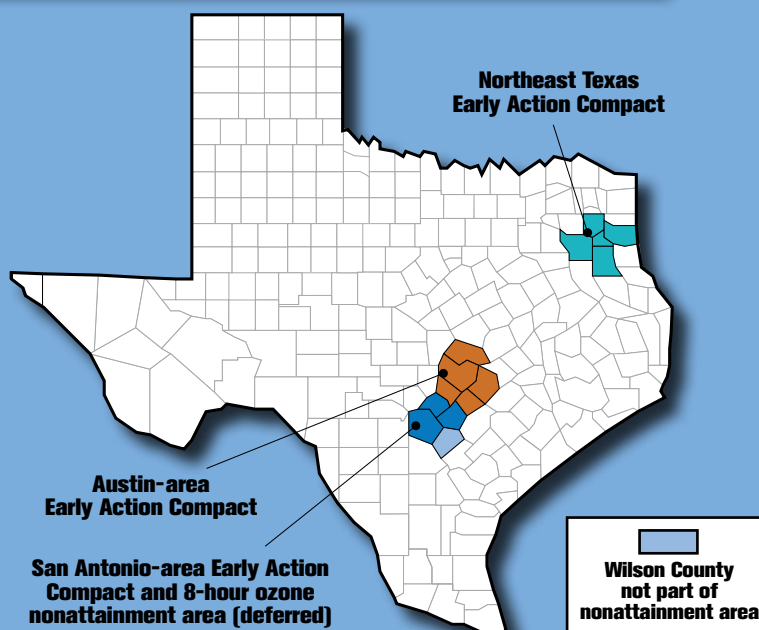
For the last three years, each area with an EAC has filed six-month progress reports with the TCEQ and EPA, detailing the latest monitoring results and the status of their clean-air programs. By the end of 2007, preliminary data showed air quality in each area to be in attainment with the 8-hour ozone standard's limit of 0.08 parts per million (ppm).

Although no further reporting is required, all three areas have committed to implement their clean-air programs through 2012.

Meanwhile, EPA recently announced new limits to the amount of ozone allowed in the air, lowering the maximum allowable concentration to 0.075 ppm under the 8-hour standard.

All three EAC areas fall short of the new standard. Based on preliminary 2005-2007 data, 22 counties in Texas are monitoring over the new standard.

3 Areas with an EAC



EPA expects to designate the nonattainment counties by 2010 and give those counties three years to develop plans to meet the new standard.

Plans are Homegrown

While the idea of creating EACs started in Texas, EPA has put the program to work in 13 other states. Now almost 40 EACs are in effect, from Virginia to Colorado.

Under EACs, state and local officials consult with stakeholders to devise the best means—usually voluntary—of reducing emissions for that locale. The plans differ from region to region, but the common challenge is generating community support and the will to carry out initiatives.

Here are some of the programs chosen in Texas to achieve emission reductions:

San Antonio. The Alamo Clean Air Partnership encouraged voluntary emission reduction measures in the business and government sectors—for example, by urging commuters to carpool, walk, or ride the bus. Under a new San Antonio ordinance, taxi owners can swap one non-hybrid permit for two permits good only for hybrid vehicles.

Austin. Travis and Williamson counties volunteered for the state's annual vehicle emissions testing, which is mandatory only in the Houston and Dallas-Fort Worth areas. In the first year of testing, almost 700,000 vehicles went through the program. The area is also enforcing local idling restrictions, and several public institutions, such as the University of Texas, have agreed to specific emission reductions from power plants. Bastrop, Hays, and Caldwell counties are also in the EAC.

Northeast Texas. The EAC, including Rusk, Smith, Upshur, Gregg, and Harrison counties, participates in the Department of Energy's Clean Cities Program to voluntarily reduce emissions from onroad vehicles. This includes funding for propane-fuel vans for local transit agencies. Also, two major companies near Longview have implemented enhanced leak detection and repair programs. Eastman Chemical Co. reduced volatile organic compounds by about 230 tons a year, and Flint Hills Resources (formerly a Huntsman facility) lowered VOC emissions by about 44 tons a year. 🌱

Late Payments Come Due

The TCEQ's get-tough stance on delinquent fees and penalties resulted in a boost in the agency's overall collection rate the first year of implementation.

In fiscal 2007, the agency's collection rate was 98.1 percent of the \$139 million in invoices issued that year.

By comparison, the collection rate in fiscal 2006 was just under 97.9 percent of the \$137 million invoiced.

The new collections protocol was enacted in September 2006, the beginning of the 2007 fiscal year, after the commissioners agreed that the agency would no longer issue, amend, or review permits, registrations, or certifications for any person or entity with overdue penalties or fees.

Under the delinquent fee and penalty protocol, the agency will not declare an application to be administratively complete if the applicant is delinquent in any payments.

Also the agency will withhold final action on any application that was ruled administratively complete before staff knew about the late payments.

The protocol allows certain exceptions, such as with applicants who agree to a TCEQ-approved payment plan or are engaged in bankruptcy proceedings.

"The delinquent fee and penalty protocol has proved to be an effective collections tool," says John Racanelli, revenue section manager at the TCEQ.

"The biggest impact has been to speed up collections, which then reduced the number of delinquent accounts referred to our collection agency. This resulted in additional savings by reducing collection commissions."

Racanelli said that 3,588 accounts were referred to the collection agency in fiscal 2007, representing a total of \$870,000 in overdue payments. In fiscal 2006, the agency referred 3,635 accounts, for a total of \$1.5 million in late payments. 🌱

Student Design Takes Off

It takes a teenager to really know a set of wheels. Seventeen-year-old Justin Bennett of Belton turned in the winning logo for the Drive a Clean Machine program.

Bennett, a senior at Belton High School, took top honors in a statewide design contest that drew entries from more than 400 students in grades 9-12.

He was awarded \$3,000 for his logo; Julie Weatherly, his technology applications teacher, received \$1,500. In all, 10 finalists and their teachers won cash awards for their submissions.

Bennett's logo will be included in print and online materials published by the TCEQ.

AirCheckTexas Drive a Clean Machine is an air quality initiative that aims to get older, polluting vehicles off the road. Vouchers of \$3,000 to \$3,500 each can be applied toward the purchase of cleaner-burning vehicles.

About \$100 million in state financial assistance is available to eligible residents in the Houston, Dallas-Fort Worth, and Austin areas, where registered vehicles are tested each year for excess emissions.

As of March 1, local administrators reported that about 10,460 vouchers had been issued. Of those, about 2,530 had been redeemed by car and truck buyers. The program is still accepting applications.

Go to www.driveacleanmachine.org for more information about Drive a Clean Machine, including the 2008 net income requirements and a list of the student finalists in the logo contest. 🌟

Drive a Clean Machine



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